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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/973,416	11/14/97	HARA M	13700-0176

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EXAMINER	
KRUER, K	

ART UNIT	PAPER NUMBER
1773	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/973,416	Applicant(s) Hara et al.
	Examiner Kevin Kruer	Group Art Unit 1773

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-19* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-19* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recite in the preamble that the resin may be used "for storing liquid foods." It is unclear how the resin composition may be utilized by itself to store liquid foods. It is the examiner's understanding that the resin must be utilized as a layer of a multi-layer laminate to be effective.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of Blinka et al. (Pat. No. 5,834,079). Koyama teaches a laminate comprising an oxygen absorbing resin layer sandwiched between inner and outer layers (see Fig 2). The oxygen absorbing resin is a blend comprising a polyvinyl alcohol and an olefin resin in a weight ratio of 99:1-90:10 (claim 1). An oxygen scavenger is incorporated into the blend in the amount of 5 to 200 parts by weight, per 100 parts by weight of the blend (col 6, lines 18-21). The inner layer allows permeation of oxygen and moisture and prevents direct contact between a liquid and the oxygen scavenger (col 6, lines 58-60). The inner layer is most preferably a polyolefin (col 6, lines 27-36) with a thickness of 1-20 microns (col 6, lines 56-57). Koyama does not teach that the oxygen scavenger may be an ascorbic acid, or that it is desirable for the layer to further include a zeolite. However, Blinka teaches a polymeric film which includes an oxygen scavenger and a zeolite. The oxygen scavenger may be selected from the group which includes ascorbates (claim 1). The addition of an oxygen scavenger into a packaging structure (col 1, lines 40-50) is well known in the art. The byproducts created from the reaction of the oxygen scavenger and oxygen can adversely affect the taste and smell of the packaged material (col 4, lines 46-52). To alleviate this problem, Blinka teaches the addition of a zeolite, which absorbs odor-causing reaction byproducts, into one or more layers of a multi-layer film (col 4, lines 52+). The zeolite may be a synthetic zeolite (claim 3) and is incorporated into the film in

amounts ranging from 2-20% (col 9, lines 1-8). It would have been obvious to one of ordinary skill in the art to substitute an ascorbic acid for the oxygen scavenger in the laminate taught in Koyama because it is functionally equivalent to the metal oxide utilized in Koyama. Furthermore, it would have been obvious to one of ordinary skill in the art to incorporate a zeolite into the EVOH blend layer of the laminate taught in Koyama in order to prevent the migration of oxygen scavenging byproducts which may cause odor and taste problems of the container's contents.

7. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of Blinka et al. (Pat. No. 5,834,079), as applied to claims 1, 3, and 5-8 above, and further in view of Moritani et al (Pat. No. 4,99,229). Koyama in view of Blinka is relied upon as above. Neither reference teaches that the inner layer should have a moisture permeability of not less than 5 g/m^2-day. However, Moritani teaches a three-layer laminate comprising an inner layer having low moisture permeability, an intermediate gas-barrier layer, and an outer layer. Moritani teaches that it is desirable that the inner layer has a moisture permeability of not more than $20g/m^2$-day and may be selected from the group consisting of polyolefins, polyamides, and polyesters (col 9, lines 21-45). It is desirable for the inner layer to have such a moisture permeability because the lower the moisture permeability of the inner layer, the higher the gas barrier property of the obtained multi-layer structure (col 9, lines 21-26). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a polyolefin with a moisture permeability of not more than $20g/m^2$-day as the inner layer of the laminate taught

in Koyama because Moritani teaches that laminates with such inner layers possess superior gas barrier properties.

8. Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223). Koyama teaches a laminate comprising an oxygen absorbing resin layer sandwiched between inner and outer layers (see Fig 2). The oxygen absorbing resin is a blend comprising a polyvinyl alcohol and an olefin resin in a weight ratio of 99:1-90:10 (claim 1). An oxygen scavenger is incorporated into the blend in the amount of 5 to 200 parts by weight, per 100 parts by weight of the blend (col 6, lines 18-2). The inner layer allows permeation of oxygen and moisture and prevents direct contact between a liquid and the oxygen scavenger (col 6, lines 58-60). The inner layer is most preferably a polyolefin (col 6, lines 27-36) with a thickness of 1-20 microns (col 6, lines 56-57). Koyama does not teach that the oxygen scavenger may be an ascorbic acid, or that it is desirable for the layer to further include a zeolite.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which supports one or more ascorbic or araboascorbic acids, their salts or derivatives thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the foodstuff that it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite supported oxygen scavenger into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention,

specifically, col 3, lines 48+). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the EVOH blend layer of the laminate taught in Koyama in order to enhance the oxygen barrier properties of the laminate.

9. Claims 12, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223), as applied to claims 1, 3, and 5-8 above, and further in view of Moritani et al. (Pat. No. 4,999,229). Koyama in view of Daiichi Seiyaku and Teumac is relied upon as above. However, none of the relied upon references teach that the inner layer should have a moisture permeability of not less than 5 g/m^2-day. However, Moritani teaches a three-layer laminate comprising an inner layer having low moisture permeability, an intermediate gas-barrier layer, and an outer layer. Moritani teaches that it is desirable that the inner layer has a moisture permeability of not more than $20g/m^2$-day and may be selected from the group consisting of polyolefins, polyamides, and polyesters (col 9, lines 21-45). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a polyolefin with a moisture permeability of not more than $20g/m^2$-day as the inner layer of the laminate taught in Koyama because Moritani teaches that laminates with such inner films possess superior gas barrier properties.

10. Claims 1, 3, 5-8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bettle III (Pat. No. 5,320,889) in view of Blinka et al. (Pat. No. 5,834,979). Bettle teaches a laminate comprising an ethylene vinyl alcohol inner layer and an adjacent layer comprising

polyethylene and EVOH (10wt% or less)(col 7, lines 1-14). Bettle does not teach that the layer comprising a HDPE/EVOH blend may contain a zeolite and an ascorbic acid. However, Blinka teaches a polymeric film which includes an oxygen scavenger and a zeolite. The addition of an oxygen scavenger into a packaging structure (col 1, lines 40-50) is well known in the art. The oxygen scavenger may be selected from the group which includes ascorbates (claim 1). The byproducts created from the reaction of the oxygen scavenger and oxygen can adversely affect the taste and smell of the packaged material (col 4, lines 46-52). To alleviate this problem, Blinka teaches the addition of a zeolite, which absorbs odor-causing reaction byproducts, into one or more layers of a multi-layer film (col 4, lines 52+). The zeolite may be a synthetic zeolite (claim 3) and is incorporated into the film in amounts ranging from 2-20% (col 9, lines 1-8). It would have been obvious to one of ordinary skill in the art to incorporate an ascorbic acid into the ethylene/EVOH blend layer of the laminate taught in Bettle in order to improve the oxygen barrier properties of the package. Furthermore, it would have been obvious to one of ordinary skill in the art to incorporate a zeolite into the ethylene/EVOH blend layer of the laminate taught in Bettle in order to prevent migration of oxygen scavenging byproducts which could affect the taste and odor of the package's contents.

11. Claims 1, 3, 5-8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bettle III (Pat. No. 5,320,889) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223). Bettle teaches a laminate comprising an ethylene vinyl alcohol inner layer and an adjacent layer comprising polyethylene and EVOH (10wt% or less)(col

7, lines 1-14). Bettle does not teach that the layer comprising the HDPE/EVOH blend should contain a zeolite and an ascorbic acid.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which absorbs one or more ascorbic or araboascorbic acids, their salts or derivatives thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the foodstuff it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, since it is well known to incorporate oxygen scavengers into the layers of polymeric containers, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the ethylene/EVOH blend layer of the laminate taught in Bettle in order to enhance its oxygen barrier properties.

12. Claims 1, 3, and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofgren et al. (Pat. No. 5,133,999) in view of Blinka et al. (Pat. No. 5,834,079). Lofgren teaches a laminate comprising a barrier layer composed of about 20-80 wt.% polyethylene and about 80-20wt.% ethylene vinyl alcohol (col 4, lines 61-68). The barrier layer is the inner layer of the laminate (see Fig 1). Lofgren does not teach that the layer may comprise an oxygen scavenger or a zeolite. However, Blinka teaches a polymeric film which includes an oxygen scavenger and a zeolite. The addition of an oxygen scavenger into a packaging structure (col 1, lines 40-50) is

well known in the art. The oxygen scavenger may be selected from the group which includes ascorbates (claim 1). The byproducts created from the reaction of the oxygen scavenger and oxygen can adversely affect the taste and smell of the packaged material (col 4, lines 46-52). To alleviate this problem, Blinka teaches the inclusion of a zeolite, which absorbs odor-causing reaction byproducts, into one or more layers of a multi-layer film (col 4, lines 52+). The zeolite may be a synthetic zeolite (claim 3) and is incorporated into the film in amounts ranging from 2-20% (col 9, lines 1-8). It would have been obvious to one of ordinary skill in the art to incorporate an ascorbic acid into the barrier layer of the laminate taught in Lofgren in order to improve the oxygen permeability of the package. Furthermore, it would have been obvious to one of ordinary skill in the art to incorporate a zeolite into the barrier layer of the laminate taught in Lofgren in order to prevent the migration of oxygen scavenging byproducts which could affect the taste and odor of the container's content.

13. Claims 1, 3, 4-9, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofgren et al. (Pat. No. 5,133,999) in view of in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pa. No. 5,663,223). Lofgren teaches a laminate comprising a barrier layer composed of about 20-80 wt.% polyethylene and about 80-20wt.% ethylene vinyl alcohol (col 4, lines 61-68). The barrier layer is the inner layer of the laminate (see Fig 1). Lofgren does not teach that the layer may comprise an oxygen scavenger or a zeolite.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which absorbs one or more ascorbic or araboascorbic acids, their salts or derivatives

thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the food it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, since it is well known to incorporate oxygen scavengers into the layers of polymeric containers, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the regrind layer of the laminate taught in Lofgren in order to enhance the laminate's oxygen barrier properties.

14. Claims 1, 3, 5-8, 9-11, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itamura et al. (Pat. No. 5,492,953) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223). Itamura teaches a composition comprising a polyolefin and a saponified product of ethylene-vinyl acetate (abstract) in a ratio between 65:35 to 99.7:0.3 (col 4, lines 61-65). The ethylene-vinyl acetate has a saponification degree of at least 96% (abstract). The blend may be utilized in any number of different laminates (see col 9, lines 1-9) wherein F represents the ethylene/EVOH blend, A represents a polyolefin, B represents the saponified ethylene-acetate, and AD represents an adhesive. Itamura does not teach that the composition may comprise a zeolite and oxygen scavenger.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which absorbs one or more ascorbic or araboascorbic acids, their salts or derivatives

thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the food it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, since it is well known to incorporate oxygen scavengers into the layers of polymeric containers, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the ethylene/EVOH layer of the laminate taught in Itamura in order to enhance the laminate's oxygen barrier properties.

15. Claims 1, 3, 5-8, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itamura et al. (Pat. No. 5,492,953) in view of Blinka et al. (Pat. No. 5,834,079). Itamura teaches a composition comprising a polyolefin and a saponified product of ethylene-vinyl acetate (abstract) in a ratio between 65:35 to 99.7:0.3 (col 4, lines 61-65). The blend may be utilized in any number of different laminates (see col 9, lines 1-9) wherein F represents the blends, A represents a polyolefin, B represents the saponified ethylene-acetate, and AD represents an adhesive. Itamura does not teach that the composition may comprise a zeolite and oxygen scavenger. However, Blinka teaches a polymeric film which includes an oxygen scavenger and a zeolite. The addition of an oxygen scavenger into the packaging structure itself (col 1, lines 40-50) is well known in the art. The oxygen scavenger may be selected from the group which includes ascorbates (claim 1). The byproducts created from the reaction of the oxygen scavenger

and oxygen can adversely affect the taste and smell of the packaged material (col 4, lines 46-52). To alleviate this problem, Blinka teaches the addition of a zeolite, which absorbs odor-causing reaction byproducts, into one or more layers of a multi-layer film (col 4, lines 52+). The zeolite may be a synthetic zeolite (claim 3) and is incorporated into the film in amounts ranging from 2-20% (col 9, lines 1-8). It would have been obvious to one of ordinary skill in the art to incorporate an ascorbic acid into the regrind layer of the laminate taught in Itamura in order to improve the oxygen permeability of the package. Furthermore, it would have been obvious to one of ordinary skill in the art to incorporate a zeolite into the regrind layer of the laminate taught in Itamura in order to prevent migration of oxygen scavenging byproducts which could affect the taste and odor of the container's contents.

16. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above combination of references and further in view of Hofeldt et al. (Pat. No. 5,204,389). The combinations of references are relied upon as above. However, none of the combinations teach that the oxygen scavenger should be contained in amounts ranging from 0.05-10wt.% of the resinous composition. However, Hofeldt teaches a film for a container closure which comprises ascorbates or mixtures thereof with isoascorbates or sulfites (col 5, lines 3-7). The preferred amount of ascorbate is at least 0.5wt.% based on the polymeric matrix material, and it is generally less than 10wt% (col 5, lines 51-55). Therefore, since Hofeldt teaches that an effective amount of ascorbate for the purpose of oxygen scavenging is between 0.5-10wt%, it would have been

obvious to one of ordinary skill in the art to utilize such amounts of ascorbate in the above taught laminates.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hirata et al (Pat. No. 3,857,754), McCord (Pat. No. 4,971,864), and Pearson et al. (Pat. No. 5,534,351) all teach an EVOH/polyolefin blend. Hatakeyama et al. (Pat .No. 5,820,956) teaches a composition comprising an oxygen scavenger and a zeolite.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is (703) 305-0025. The examiner can normally be reached on Monday-Friday from 7:00 a.m. to 4:00 p.m.

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